Why Is This Man Smiling?

That gleam in Albert Szent-Gyorgyi's eye could well mean he's closing in on a cure for cancer

By Carol Kahn

The lecture hall was filled. On the stage, a small figure darted about—joking, exclaiming, drawing diagrams on the blackboard, pointing out salient features on the projected slides. His every move seemed to dance with enthusiasm.

The atmosphere was almost like that of a large family gathering, as the research biologists, chemists and physicists roared with laughter at the "in" jokes and listened with appreciation and affection to their preeminent member. They had come to hear the latest findings of a researcher who has spent more than a quarter century probing the mysteries of cancer. With such a man, there was always the hope he would finally crack the biggest disease puzzle of our time. After all, this was the same man who had discovered vitamin C four decades earlier.

Indeed, cancer is only this lecturer's most recent field of interest. He burst upon the scientific scene years ago during his medical school days with brilliant studies on microscopic anatomy, and went on to do ground-breaking work in metabolism. He also founded the field of muscle physiology, and for his discovery of ascorbic acid, or vitamin C, he won a Nobel Prize in Physiology or Medicine in 1937.

His name—not instantly or easily recognized—is Albert Szent-Gyorgyi, pronounced Saint Georgy, just like the dragon-slaying character of medieval times. And, like his namesake, he hasn't stopped slaying dragons yet, even though he is 84 years old. In fact, when I introduced myself after his lecture as the person who was to interview him the next day, he grasped my hand in a bone-crushing shake and, continuing to pump it, asked if I would mind postponing our appointment for a half-hour because he always took a swim at 9 AM.

At that moment, I revised my entire concept of age.

The next day—at 9:30, as promised—I visited this remarkable gentleman at the Marine Biological Laboratory in Woods Hole, Massachusetts. A unique beehive of research activity, the center has been Szent-Gyorgyi's home for 41 years. Here, where an estimated 30 Nobel prizewinners have worked at one time or another, he is known simply as "The Prof."

Seated in his shirt sleeves, with the sun streaming in from the sparkling harbor, the broad-shouldered, heavily muscled biochemist presented a powerful image, confirming my impression of him from the night before—even down to another shattering handshake. He began simply but spoke with great passion. Like the audience in the lecture hall, I was mesmerized.

"The great difficulty of my research is that it involves many different sciences," the Hungarian-born scientist says. "But, when all the work comes together, it will lead to the solution of cancer."

Szent-Gyorgyi's goal is to prevent the disease altogether, but the biggest obstacle in recent years has been money. "People are interested in what you can make into pills and sell," he announces. Research—the intangible—is therefore unappealing to most committees. "You can't swallow basic research," he adds, then charges on. "The people on the money committees say, 'We will give you the money if you tell us exactly what you will do.' This is nonsense, because research means going into the unknown."

Scorning the hit-or-miss approach to cancer, in which one drug after another is tested in the hope that something will finally work, Szent-Gyorgyi wants to understand the mechanism of the disease first. This insistence on knowing the cause before the cure has cost him dearly. He lost his Government funding years ago and hasn't been able to obtain a Federal grant for the past ten years.

Government obstacles are nothing new to Szent-Gyorygi. As an outspoken critic of Nazism during World War II before he came to this country, he was imprisoned by that regime, managed to escape, and was hunted for years by Hitler's Secret Service. After that experience, his experience with our Government was doubly disappointing.

But though the U.S. Government turned him down, the people of this country haven't. For a while after his funds were cut off, a rich neighbor in Woods Hole kept his research alive. When that support ended, another remarkable event occurred. One day he received a letter with a $25 check from a young man in Washington, D.C.

As Szent-Gyorgyi tells it: "I wrote him a long letter of thanks in longhand. He answered saying that if a man who believes as much in science as I do is touched by this magnificent gift, this grant of $25, then something is wrong." The donor followed

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Photograph by Doug Bruce/Camera 5

up with a visit to the Nobel Laureate and was so impressed that he set up a National Foundation for Cancer Research. Having no real money of his own, the young man diligently sent out letters asking for contributions. Soon, the checks were pouring in and now the end is nowhere in sight.

Not only cancer, contends Szent-Gyorgyi, but heart disease, arthritis, schizophrenia and all other chronic degenerative diseases for which we have no answers, have been hampered by the lack of funds available for fundamental research. Great discoveries don't come by pinpointing exact areas of concentration, and the experiences of Szent-Gyorgyi himself are prime examples of this basic belief. In the 1930's, while studying the chemistry of respiration in plants, he isolated and analyzed a substance that turned out to be vitamin C. As he says, "Very often in science, you look for something and you find something else."

Today his effort to understand the nature of cancer has led him to a most unexpected place—the electron. The solution to cancer as well as other degenerative diseases, he believes, lies hidden at this elementary level of life. This notion runs counter to the belief of most biologists and biochemists, who feel that the processes of life take place on a larger scale than that of the electron—that of the molecule. He is adamant: "I feel strongly that life is an electronic business."

"Cancer research," he continues, "has been greatly retarded by our asking why cancer grows instead of asking what keeps a normal cell from growing like a cancer cell." Every cell in the human body has to have a "growing" drive or we could not survive. But there must also be a regulatory mechanism within each cell to keep this drive from getting out of hand. If something goes haywire in the regulatory system, then any cell in the body has the potential for unrestrained—cancerous—growth, dividing, multiplying and eventually killing the whole organism.

All malignancies are the result of a disturbance in this mechanism that regulates cell division. "The cancer cell is comparable to a car parked on a slope. If it starts moving, one does not ask 'what drives it?' but asks 'what has gone wrong with the brake?'

"Until now, cancer was looked upon as a hostile intruder that had to be eliminated. It might be looked upon also as a cell in trouble, which needs help to return to normal," Szent-Gyorgyi says. "If I know what has changed in the regulatory mechanism, then I can see how to prevent that shift from taking place. I feel we are on the trail, and that we are close to preventing cancer."

Prevention of disease is the future of medicine, according to Szent-Gyorgyi. And one key element in any healthy maintenance regimen may be his own vitamin C.

While it has long been known that ascorbic acid can prevent scurvy, and more recently, Linus Pauling and others have claimed that it is effective against colds, the Woods Hole biochemist says: "Its real medical meaning has become clear only in the last few years. Ascorbic acid is not a special remedy against colds. What it does is make your machinery work better, so that your body is stronger and healthier."

"While I can't get a penny for my cancer research, the Government spends $137 billion for an army."

So sold is the vitamin's discoverer that he takes a whopping 4 grams a day, one gram at each meal and one gram at bedtime.

"Our body is much more perfect than we think," Szent-Gyorgyi says. "But we abuse it terribly. A body is like a machine, like your car. If you give your car dirt instead of oil, it won't run very far. But there is one difference between a car and a human being. If you *use* your car very often, it will go to pieces. If you *don't use* your legs they will go to pieces. The machine is wrecked by use; the living body by disuse."

Though there has been, and will continue to be, great progress in disease prevention, Szent-Gyorgyi still worries. And as our discussion proceeds, he startles me with his mixture of irony, anger, despair, disgust and talk of our rush to self-destruction.

"All that we have talked about here—health, cancer, disease—does not matter because in fifty years we will not exist," he declares, pounding his desk. "How long can you build enormous armies, make more and more atomic bombs that can destroy a city in one blow, before something happens? While I can't get a penny for my cancer research, the Government is spending one hundred thirty-seven billion dollars for defense, for an *army*. Why do we need an army? Whom do we want to kill?

"We are now too big and our armies are too big and will kill us. Our brains have become too big and are not balanced by moral and ethical standards. *This* is what you should write about," he tells me in a thundering voice. "If we don't become decent citizens and teach our children to be decent citizens of a better world, this world will be condemned to death."

At this point an assistant walks into the room and hands him some colored slides. Abruptly, his manner changes. I sit stunned while he breaks into a smile and says with great warmth, "Thank you, you are my angel." He is charged, excited, anxious to return to his work. My time is up.

When I leave him absorbed in studying the slides, I am reminded of the words George Wald spoke upon receiving the Nobel Prize for Physiology or Medicine in 1967: "A scientist is in a sense a learned child. There is something of the scientist in every child. Others must outgrow it. Scientists can stay that way all their lives."■

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